

*FIOLETOV, I. S.*

USSR/Engineering - Machines

Card 1/1 : Pub. 70 - 8/11

Authors : Urusov, M. M.; Fink, I. G.; and Fioletov, I. S., Engineers

Title : Conveyer-belt type vacuum press SM-142

Periodical : Mekh. stroi. 4, 22-24, Apr 1954

Abstract : The technical characteristics of a conveyer-belt type vacuum press SM-142, used in the manufacture of structural bricks, are described. The press, manufactured at the Krasnyy Oktyabr Plant of the Ministry of Heavy Machine Industry, was tested at one of the largest brick producing factories and the results are listed. Drawing.

Institution : .....

Submitted : .....

*FIOLETOV, I.S.*

UROSOV, M.M., inzhener; FIOLETOV, I.S., inzhener.

~~SM-307~~ automatic saw for cutting building blocks. Mekh.stroi.

11 no.8:25 Ag '54.

(MLRA 7:8)

(Rotary saws) (Building blocks)

1ST AND 2ND ORDERS		PROCESSES AND PROPERTIES INDEX	
<p><i>Ch</i></p> <p>Acid volcanic rock of Kara-Dagh, Crimea. D. V. SOKOLOV AND A. P. FIOLETOVA. <i>Trans. State Inst. Testing Building Materials and Glass (Moscow)</i> No. 34, 33-45 (in German 46)(1930).—A continuation of the investigations of S on trass from Kara-Dagh in Krim (Institut. f. Silikatforschung zu Moskau, 1928, Heft 23) and liparite from the standpoint of their geologic conditions and their chem. and petrographic properties. Liparite shows more <math>SiO_2</math> and alkalis, lower Fe and alk. earths and less loss on ignition but much less active <math>SiO_2</math> than trass, which, in this respect, overshadows diatomaceous earth, tale and asbestos. The alkali content (<math>K_2O + Na_2O</math> 8.75%), low iron (av. 0.44%) and Ti (av. 0.10%) and suitable other constituents show that liparite should be suitable raw material for glass manuf. Its chem. compn. approaches that of the plagioclase feldspars. The presence of 0.080% <math>V_2O_5</math> in andesite is reported.</p> <p>R. S. DEAN</p>		<p><i>8</i></p>	
<p>ASS. S. L. METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>STONY STRUCTURE</p>		<p>STONY BODIES</p>	
<p>STONY BODIES</p>		<p>STONY BODIES</p>	

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
<p>Investigating the content of rare earths in sands for glass melting. A. Pioletova. <i>Kovum. i Spelle</i> 10, No. 3, 5 (1934). The effects of MnO, Cr<sub>2</sub>O<sub>3</sub>, V<sub>2</sub>O<sub>5</sub> and ZrO<sub>2</sub> on glass are discussed, and analyses of 8 sands employed for glass melting in the U. S. S. R. are presented. M. V. K.</p>																			
<p>ASB-SEA METALLURGICAL LITERATURE CLASSIFICATION</p>																			
<p>1ST AND 2ND ORDERS</p>										<p>3RD AND 4TH ORDERS</p>									

**Celadonite from Koktebel, Crimea.** S. D. Chetverikov and A. F. Fioletova. *Compt. rend. acad. sci. U. R. S. S.* 7, 200-71 (in German 271-2) (1935).—A description of a gray-green specimen of celadonite found in carkite. An analysis is given, together with the analyses of two

of  $\text{Na}_2\text{P}_2\text{O}_7$  than in presence of  $\text{Na}_2\text{PO}_3$  and is best with  $\text{Na}_2\text{SO}_4$ .  
A. A. Bochtlingk

COMMON ELEMENTS										PROCESSES AND PROPERTIES INDEX										RARE AND OTHER ELEMENTS									
<p>bc</p> <p>2-1</p> <p>Determination of sulphur in silicon. A. F. PISTOVA (J. Appl. Chem. Russ., 1935, 8, 1461—1464).—Total S is best determined as <math>SO_4^{2-}</math> after fusion with <math>Na_2CO_3-KNO_3</math>. <math>SO_4^{2-}</math> is determined by extraction for 1 hr. with boiling 10% HCl in an inert atm.; atm. <math>O_2</math> leads to high val., owing to oxidation of sulphide S to <math>SO_4^{2-}</math>. No satisfactory direct method of determination of sulphide S was found.</p> <p>R. T.</p>																													
<p>ASB-344 METALLURGICAL LITERATURE CLASSIFICATION</p>																													
<p>RECORD #1</p>										<p>RECORD #2</p>										<p>RECORD #3</p>									
<p>RECORD #4</p>																													

COMMON ELEMENTS		COMMON VARIABLE	
MATERIALS INDEX		PROCESSES AND PROPERTIES INDEX	
bc		a-1	
<p>Determination of ferric oxide. A. F. FIOLE-TUYA and S. CHAIKINA (J. Appl. Chem. Russ., 1935, 8, 1467-1469).—Somaya's Zn amalgam method is simpler and not less accurate than are the <math>TiCl_3</math> reduction, the iodometric, and the colorimetric methods.</p> <p>R. T.</p>			
ASM-31A METALLURGICAL LITERATURE CLASSIFICATION			
STONY STRIP		STONY STRIP	
STONY STRIP		STONY STRIP	

CA

22

Determination by luminescence analysis of the extent to which rocks are impregnated with bitumen. A. F. Pivovarov. *Zhur. Anal. Khim.* 2, 47-53 (1957).—A strip of filter paper suspended in a  $\text{CHCl}_3$  ext. of bitumen and then viewed in a fluoroscope showed stripes of different colors. By analyzing various fractions of bitumen it was ascertained that the fluorescence of light fractions (oils) appeared as cream-colored or golden-yellow stripes, the fluorescence of tars appeared as orange, red-brown, and brown stripes, depending on concn. and mol. wt., and the asphaltenes produced dark brown or black stripes. This served as a guide in the prepn. of standards since only standards of comparable compn. as the examd. sample are reliable. To examine a mineral weigh 2 samples of 0.1 g. each and place each in a 8-ml. test tube provided with a ground-glass stopper. Add 5 ml. of  $\text{CHCl}_3$  and shake. Into one test tube insert a strip of filter paper, taking care that it does not touch the walls and keep overnight. Examine the paper strip to det. the nature of the bitumen. Having established that, choose an oil of similar compn. If possible from the same locality as the rocks. Place 0.05 g. of the petroleum in a similar test tube and add 5 ml. of  $\text{CHCl}_3$ . Transfer half of the contents into another test tube, add 5 ml. of  $\text{CHCl}_3$  and proceed to halve each successive soln. until there are 12 test tubes contg. from 0.025 to 0.0001 g. of bitumen. Use these for comparison with  $\text{CHCl}_3$  exts. of rock sam-

ples. Only one rock sample is needed to det. the nature of the bitumen in rocks from the same locality. Many samples examd. by this method were also analyzed by the extn. method. In these samples the bitumen content was 0.02-5.65%. The abs. difference of the 2 methods was  $-0.01$  to  $+1.48\%$  and the relative difference  $-3.0$  to  $+7.5\%$ . As a rule the values detd. by fluorescence were greater. This is attributed to the evapn. of some of the lighter fractions in the extn. method. Some of the rocks also phosphoresced. The bitumen content of these rocks, detd. by careful extn. was 0.03-0.13%. Although many rocks contained 0.13% of bitumen none contained more. It is suggested that this presents a new type of combined bitumen. Studies of this bitumen are continued.

ASB-SLA. METALLURGICAL LITERATURE CLASSIFICATION

STEEL

1ST AND 2ND ORDERS										PROCESSING AND PROPERTIES INDEX										3RD AND 4TH ORDERS									
CA										22																			
<p><b>Luminescence analysis of bituminous materials. A. J. Piskovskiy. Invest. Abad. Nauk S.S.S.R., Ser. Fiz. 13, 254-6 (1949); cf. C.A. 43, 5573i.</b>—There are 2 forms of bituminous materials found during well drilling: the "free" bitumen-A fluoresces after addn. of a drop of <math>\text{CHCl}_3</math>, the "bound" bitumen (C-1) must first be treated with dil. <math>\text{HCl}</math>. P. found another type (C-2) luminescent with long afterglow even without treatment with <math>\text{HCl}</math> or <math>\text{CHCl}_3</math>. C-2 is present in upper parts of the wells in quantities of 0.001-0.01%. Deeper in the well both C-1 and C-2 are present and gradually the content in bitumen-A increases and reaches up to 5-10%. The findings reveal the position of the well in relation to the layer of bitumen. A chromatographic analysis of bitumen can be made as follows: A soln. of bitumen in <math>\text{CHCl}_3</math> is passed through a glass tube 0.5 x 10 cm. filled with <math>\text{MgO}</math>. The oils remain in the filtered portion, the asphalts remain at the top of the tube, and the tars are distributed in the tube. The filtered portion is evapd. and the residue is weighed. The tube is heated with petr. ether and <math>\text{EtOH}</math> (10:1); the tars are dissolved and weighed after evapn. of the solvent. The asphalts are dissolved by benzene and <math>\text{EtOH}</math> (10:1). Water found in drilling can be analyzed for bitumen as follows: 100 ml. is shaken with 5 ml. <math>\text{CHCl}_3</math> and again, after sepn., with 2 ml. <math>\text{CHCl}_3</math>. The liquid is made alk. and its luminescence can be compared with the luminescence of standard samples. It could be shown that the content of bitumen in <math>\text{H}_2\text{O}</math> diminishes with the depth of the well.</p> <p style="text-align: right;">S. Paksver</p>																													
458-514 METALLURGICAL LITERATURE CLASSIFICATION																													
FROM SYNDICATE										TO THE BUREAU										TO THE FIELD									
APPROVED										RECEIVED										DATE									

FIOLETOVA, A. F.

32377 CHETVERIKOV, S. D. i FIOLETOVA, A. F. Rastvorimyy Kremnezem v Nekotorykh Mineralakh i Gornyykh Porodakh. Uchen. Zapiski (Mosk. Gos. Un-t im. Lomonosova), vyp. 142, 1949, s. 105-12--Bibliogr: 7, NAZV.

SO: Letopis' Zhurnal'nykh Statey, Vol. 44

AUTHOR: Fioletova, A. F.

75-6-10/23

TITLE: **Rapid Luminescent Determination** of Uranium in Solutions  
(Ob ekspressnom lumineststentom opredelenii urana v rastvorakh).

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1957, Vol. 12, Nr 6, pp. 718-719 (USSR).

ABSTRACT: A rapid determination of the luminescence of uranium by means of the fluorimeter GOIFM-42 is described here. Elements like chrome, manganese, iron, cobalt, nickel, calcium, or magnesium, bismuth or cadmium, which disturb the luminescence, are eliminated by diluting the sample intensely, or by adding uranium. A dilution is permissible provided that the uranium content amounts at least to  $1,10^{-4}$  g/ml. If the quantity of uranium is relatively small and the quantity of disturbing elements large, uranium is added. Satisfactory reproducible results are obtained and the relative error amounts to  $\pm 10\%$ . There are 2 references.

SUBMITTED: January 28, 1957.

AVAILABLE: Library of Congress.

1. Uranium luminescence-Determination 2. Fluorimeter-Applications

Card 1/1

S/075/62/017/003/001/004  
1017/1217AUTHOR: Fioletova, A. F.TITLE: Determination of small amounts of aluminium in uranium by the  
luminescence method

PERIODICAL: Zhurnal analyticheskoy khimii, v. 17, no. 3, 1962, 302-304

TEXT: The method is based on the extraction of the Al-8-oxyquinolate using chloroform. The uranium remains in the aqueous phase. The extract has a yellow green luminescence if the content is equal to  $1.10^{-7}$  g/Al in ml. solution. The colorimetric determination based on yellow color is possible at  $1.10^{-15}$  g per ml. and by luminescence at  $1.10^{-7}$  g per ml. The interference of Fe, Cr and Ca is studied: Fe interferes when its content is equal to  $1.10^{-5}$  g Fe per 10 ml.  $\text{CHCl}_3$  solution Ca and Cr do not interfere even in concentrations of 0.01 g metal in 10 ml. solution.

The red 8-oxyquinolate of uranium is masked in basic medium by addition of  $\text{NaHCO}_3$  in large excess (ten-fold weight of the required amount) and boiling for 10 minutes. The luminescence shade of  $\text{CHCl}_3$  solution of the Al 8-oxyquinolate changes in the presence of uranium, it is necessary to add to the standard solutions, the same amounts of uranium as are contained in the sample. A series of standard solutions were tabulated and the results of 20 determinations shown in tabular form. The method permits the determination of  $\gamma$  quantities of Al in metals and alloys (steels) with an error of 10% (relative). At concentrations in the range from  $1.107^{-}$  to  $2.10^{-7}$  g in 10 ml. solution the error varies between  $\pm 20-30\%$  (relative).

Card 1/3

## Determination...

S/075/62/017/003/001/004  
I017/I217

The preparation of the reagent and of the standard solutions is given. The proposed method is an adaptation of that proposed by Goon and Petti (1953). The procedure: 0.1–0.2 ml. of the metal or the oxide are dissolved in a quartz crucible by heating on a water bath with addition of a few drops of  $\text{HCl} + \text{HNO}_3$ . The solution is evaporated to obtain the crystalline salt. If Fe is present in amounts  $1.10^{-2}\%$ , the sample is dissolved in 15–20 ml 6N HCl and the Fe is removed from this solution by solvent extraction using ether and KCNS. The solution is tested for Fe by addition of KCNS, the ether is completely removed, and the solution is quantitatively transferred in a 100 ml volumetric flask and diluted to the mark. An aliquot sample of the above solution containing  $5.10^{-7}$  to  $1.5 \cdot 10^{-6}$  g Al is evaporated to dryness in a quartz crucible and treated with 10 ml. 8%  $\text{NaHCO}_3$  solution, by boiling for 10 min. The cooled solution is transferred in a quartz separatory funnel together with 1 ml 2% solution of 8-oxyquinoline and 5 ml  $\text{CHCl}_3$  and vigorously shaken and extracted for 5 minutes. The second chloroform extract is mixed with the first, the volume is adjusted with chloroform and after mixing, the intensity of the luminescence is compared to those of the chloroform layers of the standards prepared by the same procedure. The comparison should be carried out 24 hours after their preparation at the latest, in a dark room, using an ultraviolet source of light ( $\lambda = 365 \text{ m}\mu$ ). The method gives good reproducibility. There are 2 tables.

Card 2/3

Determination...

S/075/62/017/003/001/004  
I017/I217

The amount of Al is calculated as follows:

$$\%Al = \frac{v \cdot c \cdot W \cdot 100}{W_1 \cdot m}$$

v = volume of the aqueous standard solution of aluminum (ml)  
c = concentration of Al in the aqueous standard solution (g/ml)  
W = total volume of the sample (ml)  
W<sub>1</sub> = volume of the aliquot part of the sample (ml)  
m = weight of the analyzed sample.

SUBMITTED: April 26, 1961

Card 3/3

L 17537-65 EWT(m)/EPF(n)-2/EWP(t)/EWP(b) Pu-4 IJP(c)/ASD(f)-2/AS(mp)-2/AFMDC/  
 ACCESSION NR: AF4042626 ASD(m)-3/ S/0075/64/014/007/0868/0870  
 ASD(a)-5 JD/WW/JG

AUTHOR: Pioletova, A.F.

TITLE: determining small amounts of sulfur in beryllium, zirconium,  
 niobium and their oxides

Source: Zhurnal analiticheskoy khimii, v. 19, no. 7, 1964, 868-870

TECH TAGS: sulfur determination, luminescent method, quinine hydro-  
 chloride, quinine hydrochloride reagent, beryllium, zirconium, nio-  
 bium, beryllium oxide, zirconium oxide, niobium oxide, pH control,  
 photometric analysis

ABSTRACT: From  $1 \times 10^{-7}$  to  $1 \times 10^{-5}$  gm. sulfur can be determined by  
 luminescent method using quinine hydrochloride  $C_{20}H_{24}N_2O_2 \cdot HCl \cdot 2H_2O$ ,  
 and  $C_{20}H_{24}N_2O_2 \cdot H_2SO_4 \cdot 6H_2O$  in the presence of  $SiF_6^{2-}$  ions.  
 This is a brightly colored blue color  
 in violet light whose brightness depends on pH. This work was  
 directed to determine a suitable pH to be used in the analyses with  
 quinine. The sulfur in Be, BeO, Zr, ZrO<sub>2</sub>, Nb or Nb<sub>2</sub>O<sub>5</sub> was oxidized  
 with H<sub>2</sub>O<sub>2</sub> or HNO<sub>3</sub>; the samples were then dissolved in HCl, the solu-  
 tion evaporated and the residues dissolved in dilute hydrochloric

E 17537-65

ACCESSION NR: AP4042626

acid to make up 50 ml of solution pH 3-3.5. 0.1 ml of the quinine hydrochloride reagent (1 gm dissolved in 30 ml water; 1 ml of this diluted to 100 ml) was added and solutions were compared with standard solutions in ultraviolet light at 365 millimicrons. In the case of niobium, determinations must be made rapidly and in as concentrated solutions as possible to avoid hydrolysis of the niobium. The reliability of results in niobium solutions is poorer than in Fe and when determining the sulfur photometrically. However, by adding a standard sulfur solution to the test solutions it was possible to maintain the error within 20% in the determination by the luminescent method. Optimum conditions for sulfur determination at pH 3 are at  $1 \times 10^{-6}$  -  $7.5 \times 10^{-6}$  gm. of sulfur in 10 ml of the test solutions. Orig. art. has: 1 table.

ASSOCIATION: None

SUBMITTED: 04Jul63

ENCL: 00

SUB CODE: GC

NR REF SOV: 002

OTHER: 005

Card 2/2

FIOLIC, M.

SURNAME (in caps); Given Names

Country: Yugoslavia

Academic Degrees: [not given]

Affiliation: [not given]

Source: Belgrade, Veterinarski glasnik, No 6, 1961, pp 443-454.

Data: "On the Further Development of Veterinary Service in Yugoslavia."

FIOLIC, Viktor, ing.

Review of a two-year trial campaign against *Otiorrhynchus*  
*alutaceus* a. *vittatus*. Kem ind 10 no.4:Suppl.C- 49-51 Ap '61.

1. "Chromos", Zagreb.

FIOLIC, Viktor, ing.

Storage and transportation of formalin. Kem ind 10 no.6:  
Suppl.C-75 Jo '61.

1. "Chromos", Zagreb.

FIOLIC, Viktor, ing.

The use of formaldehyde as a reagent in chemical analyses. Kem  
ind 10 no.9:287-288 S '61.

FIOLIC, Viktor, inz.

Reaction of formaldehyde with aliphatic hydroxy compounds.  
Kemija u industriji 11 no.2:77-81 '62.

FIOLIC, V., inz.: VIDAKOVIC, R., inz.

Some observations on the use of Tekstofix in textile industries.  
Kemija u industriji no.5:301-303 My '62.

Y/002/62/000/012/003/003  
D267/D307

AUTHOR: Fiolić, V., Engineer

TITLE: Carbamide-formaldehyde synthetic adhesives

PERIODICAL: Kemija u industriji, no. 12, 1962, 739-743

TEXT: After discussing the physical and chemical processes which take place when these adhesives are used for the glueing of wood, and the effects of moisture content, pressure, temperature and catalysts, the author describes the experimental determination of the gelation time of two adhesives, and the shear strength determination (German Standard DIN 53,253 and British Standard BS 1203). In the last part the author discusses the ageing of the adhesives (storage life, measurement of viscosity). Other important properties of the adhesives are miscibility with water, percentage of free formaldehyde, and pH of the adhesive.

Card 1/1

FIOLOC, V., ins.

Formaldehyde polymers. Kemija u industriji 11 no.7:417-418  
Jl '62.

FIOLIC, V., inz.

Formaldehyde polymers. Kem ind 11 no.12:747-748 D '62.

FIOLIC, Viktor, inz.

Glue for parquet floors. Kem ind 12 no.5:372-374 My '63.

FIOLIC, V., inz.; VIDAKOVIC, R., inz.

Problem of freeing plywood sheets from formaldehyde.  
Kem ind 13 no. 2: 125-128 F '64.

FIOLIC, Viktor, inz.

A synthetic adhesive for gluing with high-frequency apparatus.  
Kem ind 13 no. 7:528-530 J1 '64.

Problem of fillers in synthetic adhesives. Ibid.:530-532

1ST AND 2ND DECKS										3RD AND 4TH DECKS									
FIOŁKOWNA, F										PROCESSES AND PROPERTIES INDEX									
<div style="position: relative; height: 100px;"> <span style="position: absolute; top: 10px; left: 10px;">S</span> </div>										<p><b>Slag Control in Open-Hearth Furnaces.</b> K. Radołowski and K. Fiołkowna. (Prace Badawcze Głównego Instytutu Metalurgii, 1951, No. 1, pp. 1-97). [In Polish]. The introduction and wide application of the pancake method of slag control met with some difficulties due to the crumbling of slag samples and to photographs not showing the main characteristics of the patterns clearly enough. Other methods such as conductometric, potentiometric, and volumetric titrations of aqueous extracts of slag are compared, and their suitability for evaluation of slag basicity discussed. A volumetric titration method using 0.1 N sulphuric acid was proposed as being accurate enough and easy to apply in steelworks laboratories.—V. O.</p>									
COMMON ELEMENTS										COMMON VARIABLE METALS									
MATERIALS INDEX										METALLURGICAL LITERATURE CLASSIFICATION									
FROM SYNONYM										FROM ROMAN									
SYNONYM										ROMAN									
SYNONYM										ROMAN									

FIOLNA, Jan, inz.

The Tarnowskie Gory Chemical Works in the forefront; improvements in raw material management. Chemik 16 no.2:43-47 F '63.

FIONIN, V.I.

Condition of standardization in machinery manufacturing production  
in Czechoslovakia. Nauch.trudy MIEI no.18:47-51 '61. (MIRA 15:2)

(Czechoslovakia--Machinery industry)

FIONOV, N.; ZUBRITSKIY, V.

Direct method of operation. Mor. flot 22 no.9:10-13  
S '62. (MIRA 15:12)

1. Nachal'nik otдела mekhanizatsii i tekhnologii Gosudarstvennogo proyektno-konstruktorskogo i nauchno-issledovatel'skogo instituta morskogo transporta (for Fionov).
2. Rukovoditel' gryppy otдела portov i morskikh putey Gosudarstvennogo proyektno-konstruktorskogo i nauchno-issledovatel'skogo instituta morskogo transporta (for Zubritskiy).

(Cargo handling)

VEDEKHIN, A.F.; DWORKIN, I.L.; FIONOV, A.I.

Instrument for the neutron logging of flowing oil wells. Geol. i  
geofiz. no.5:48-50 '64. (MIRA 17:9)

1. Volgo-Ural'skiy filial Vsesoyuznogo nauchno-issledovatel'skogo  
instituta geofizicheskikh metodov razvedki.

FIONOV, N.

Honor of an engineer is a public matter. NTO 5 no.6:19-20 Je '63.  
(MIRA 16:9)

1. Zamestitel' predsedatelya Tsentral'nogo pravleniya nauchno-  
tekhnicheskikh obshchestv vodnogo transporta.

FIONOV, M.

Remarks on the article "Determining the indice of the level of over-all mechanization of loading and unloading operations." Mor. flot 23 no.3:14 Fr '63. (MIRA 16:3)

1. Nachal'nik otдела mekhanizatsii Gosudarstvennogo proyektno-konstruktorskogo i nauchno-issledovatel'skogo instituta morskogo transporta.

(Loading and unloading—Equipment and supplies)

MARTIROSOV, Aleksandr Yemel'yanovich; FIONOV, N.I., nauchn. red.

[Organization of cargo-handling operations in sea ports]  
Organizatsiia gruzovykh rabot v morskoy portu. Moskva,  
Transport, 1965. 149 p. (MIRA 18:11)

ZUBRITSKIY, Vladimir Ivanovich; SAKHAROV, Sergey Mikhaylovich;  
EIQNOV, Nikolay Ivanovich; SKOBELING, L.V., red.

[Transportation within a port] Vnutriportovyi transport.  
Moskva, Transport, 1965. 165 p. (MIRA 18:10)

L 25570-66 EWT(d)/EWP(h)/EWP(1)

ACC NR: AM6007923

Monograph

UR/

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Zubritskiy, Vladimir Ivanovich; Sakharov, Sergey Mikhaylovich; Fionov, Nikolay  
Ivanovich

Transportation within a port (Vnutriportovyy transport) Moscow, Izd-vo "Transport",  
1965. 165 p. illus. Errata slip inserted. 1500 copies printed.

TOPIC TAGS: marine engineering, railway engineering, highway engineering, railway  
transportation, ship, port

PURPOSE AND COVERAGE: This book is intended for students in mechanization, opera-  
tions, and hydraulic-engineering specialities in higher educational institutions  
of the Ministry of the Merchant Marine; it may also be used by port and planning-  
organization personnel in the merchant marine. Problems relating to the design,  
construction, and operation of rail lines in port areas, and short-distance ac-  
cess rail lines connecting ports to trunk lines and industrial complexes are re-  
viewed. The planning and construction of port facilities, sorting facilities,  
sorting yards, motor transport access roads, and roads connecting various port  
areas are also discussed.

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UDC: 627.2/.3:656.61

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ACC. NR: AM6007923

- Ch. I. The general character of intraport transportation -- 3
- Ch. II. Rail transportation -- 7
- Ch. III. Automotive transportation -- 91
- Ch. IV. Port vessels -- 156

SUB CODE: 13/ SUBM DATE: 19Jul65/

Card 2/2 FW

PIORESCU, Constantin ✓  
~~SURNAME~~ (in caps); Given Names 2

Country: Rumania

Academic Degrees: Engineer ✓

Affiliation: Research Institute for the Cultivation of Corn (I.C.C.P.--  
Institutul de Cercetari pentru Cultura Porumbului), Fundulea.  
Source: Bucharest, Stiinta si Tehnica, No 4, 1961, pp 26-27.

Data: "The Drying and Sorting of Corn Hybrid Seeds."

Co-author:

✓ SARCA, Vasilichia, Engineer, Research Institute for the Cultivation  
of Corn, Fundulea.

FIOSHIN, M.

Forgotten page. Znan.sila 31 no.9:22 S '56. (MLRA 9:10)  
(Iablechkev, Pavel Nikolaevich)

IZGARYSHEV, N.A.; FIOSHIN, M.Ya.

Electrolytic synthesis of aminobenzoic acids. Doklady Akad. Nauk S.S.S.R.  
90, 189-90 '53. (MLRA 6:4)  
(CA 47 no.18:9186 '53)

USSR

✓ The adsorption of organic substances on the cathode and their reduction potentials. N. A. Izgaryshev and M. Ya. Flishta. *Doklady Akad. Nauk S.S.S.R.* 60, 581-2 (1953).  
In earlier work (cf. Antropov, *C.A.* 46, 6013c), it was shown the elec. reduction of org. substances occurs extensively only when the reduction potential is close to the null point of the electrode. To verify this the reduction of the nitrobenzoic acids was studied and an attempt was made to correlate the polarity of the mols. with their reduction potentials and with their adsorption on Hg. There was little difference in the reduction potentials of the ortho, para, and meta acids which corresponds to the insignificant difference in their dipole moments. The adsorption, however, depended strongly on the polarity of the mol.  
J. Rovtar Leach

*FIOSSHIN, M YA.*  
USSR/Chemistry - Organic electrochemistry

FD-371

Card 1/1      Pub.50 - 4/24

Author : Khomyakov, V. G., Cand Tech Sci; Tomilov, A. P.; Fioshin, M. Ya.,  
Cand Tech Sci.

Title : Some prospects of the industrial application of the electrosynthesis  
of organic substances

Periodical : Khim. prom., No 6, 339-340 (19-20), Sep 1954

Abstract : Review some USSR and foreign work on the production of various organic  
chemicals by electrochemical methods. State that the electrochemical  
method is superior to purely chemical methods of industrial synthesis  
from the standpoint of the area occupied by the equipment and the purity  
of the products obtained, that the capacity of electrochemical equip-  
ment can be increased, and that the cost of power cannot be regarded as  
an obstacle to the application of electrochemical procedures. Advocate  
that research leading to the industrial application of electrochemical  
methods be conducted at special laboratories attached to institutes of  
the Academy of Sciences USSR, the Ministry of Chemical Industry, and  
other ministries. Twenty four references, 17 USSR, 8 since 1940.

Institution : Moscow Order of Lenin Chemicotechnological Institute imeni D. I. Mendeleyev.

Submitted :

FLOSHIN, M. YA.  
USSR/Chemistry

Card 1/1

Authors : Izgaryshev, N. A.; and Floshin, M. Ya.

Title : Condition of the cathode surface and its role in processes of electro-reduction of aromatic nitro-compounds

Periodical : Zhur. Ob. Khim. 24, Ed. 5, 766 - 775, May 1954

Abstract : The authors investigated the process of electro-reduction of nitro-benzoic and amino-benzoic acids over tin, lead, copper, graphite and amalgamated zinc cathodes. It was established that the condition of the cathode surface plays an essential role in the process of electro-reduction of nitrobenzoic acids. Maximum yields of amino-benzoic acids were obtained in the case when a lead or copper spongy mass was formed on the copper, lead or graphite cathodes. It can be assumed that the electro-reduction of nitrobenzoic acids on these cathodes has a catalytic nature. The process of electro-reduction of aromatic nitro-compounds is apparently the primary electrode act. Twenty-two references; 1 German since 1896. Tables.

Institution : The D. I. Mendeleev Chemical-Technological Institute, Moscow,

Submitted : September 19, 1953

*FIOSHIN, M.YA.*

USSR/Physical Chemistry - Electrochemistry

B-12

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3953

Author : Fioshin M.Ya., Ivanova L.N., Izgaryshev N.A.

Inst : Academy of Sciences USSR

Title : Change in Potential of Hydrogen Evolution at a Nickel Electrode in the Presence of Certain Additions

Orig Pub : Dokl. AN SSSR, 1955, 100, No 2, 311-314

Abstract : Study of the effect of addition of aniline (I), p-toluidine, o-chloraniline, diphenylamine, methylamine (II) and  $(\text{NH}_4)_2\text{SO}_4$  (III) on the potential of hydrogen evolution ( $\xi_H$ ) in 1 N  $\text{H}_2\text{SO}_4$ . Use was made of a cathode of Ni electrolytically deposited on Pt, and also of a spongy Ni cathode. It is shown that in the presence of most of the additions at a concentration of  $1 \cdot 10^{-3}$  M there takes place a shift of  $\xi_H$  to the positive side, which can be explained by participation of ions of  $\text{RNH}_3^+$ -type in the electrochemical reaction at the

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USSR/Physical Chemistry - Electrochemistry

B-12

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3953

cathode (RZhKhin, 1954, 17866). Nature of change in  $\epsilon_H$  in the presence of II and III depends on the concentration of these additions; thus on a change in the concentration of II and III, from 0.1 to 1 M,  $\epsilon_H$  is shifted appreciably toward the negative side, which is probably associated with the appearance, in the double layer, of free molecules of II or  $NH_3$ . It is assumed that several adsorption layers are present at the cathode; the first layer consists of free molecules of II or  $NH_3$ , the next layers of  $RNH_3^+$  or  $NH_4^+$  ions. Presence of dense ionic layers hampers the penetration of  $H^+$  ions to the surface of the cathode and results in a shift of  $\epsilon_H$ , the magnitude of which depends upon the strength of added amines, which are bases. It was found that in the case of a spongy Ni cathode, the capacity of amines to lower  $\epsilon_H$  does not become manifest (except for I), even at low concentrations of the additions.

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USSR/Physical Chemistry - Electrochemistry

B-12

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3953

The correlation between  $\xi_R$  and  $\lg i$ , is expressed by straight lines having different angles of inclination.

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FIOSHIN, M.Ya.; BABIYEVSKIY, K.K.; IZGARYSHEV, N.A.

Electrolytic synthesis of methyl anthranilate. Dokl. AN SSSR  
104 no.5:744-745 O '55. (MLRA 9:2)

1. Chlen-korrespondent AN SSSR (for Izgaryshev).  
(Anthranilic acid)

*FIDSHIN, 17.4N.*

The possibility of lowering the cathode potential in the electrolysis of some aqueous solutions. *M. Ya. Fiodshin* and *S. P. Vels* (D. I. Mendeleev Moscow Chem. Technol. Inst.). *Doklady Akad. Nauk S.S.S.R.* 105, 1303-4 (1958).

Cathode-potential lowering by pptg. on the cathode some  $Fe_2O_3$  and reducing it by cathodic polarization with the formation of a smooth surface was studied in an electrolyte contg. NaCl 160 and NaOH 120 g./l. at 80°. To coat the electrode, a steel plate was degreased, etched in  $HNO_3$ , thoroughly washed with  $H_2O$ , and treated periodically with a 3% NaCl soln. for several days. A uniform  $Fe_2O_3$  film was formed which was reduced to Fe. Some peeling off of Fe did not affect the results. The lower cathode potential would result in a saving of about 10% of current at a c.d. of 1000 amp./sq. m. or 300-50 kw.-hr./ton Cl. The cathode potential was lowered 0.1-0.43 v. at a c.d. of 600-1760 amp./sq. m., and was not affected by the addn. of surface-active materials to the electrolyte. *W. M. S.*

*Chem*

*2*

*600*

*EM*

**"APPROVED FOR RELEASE: 06/13/2000**

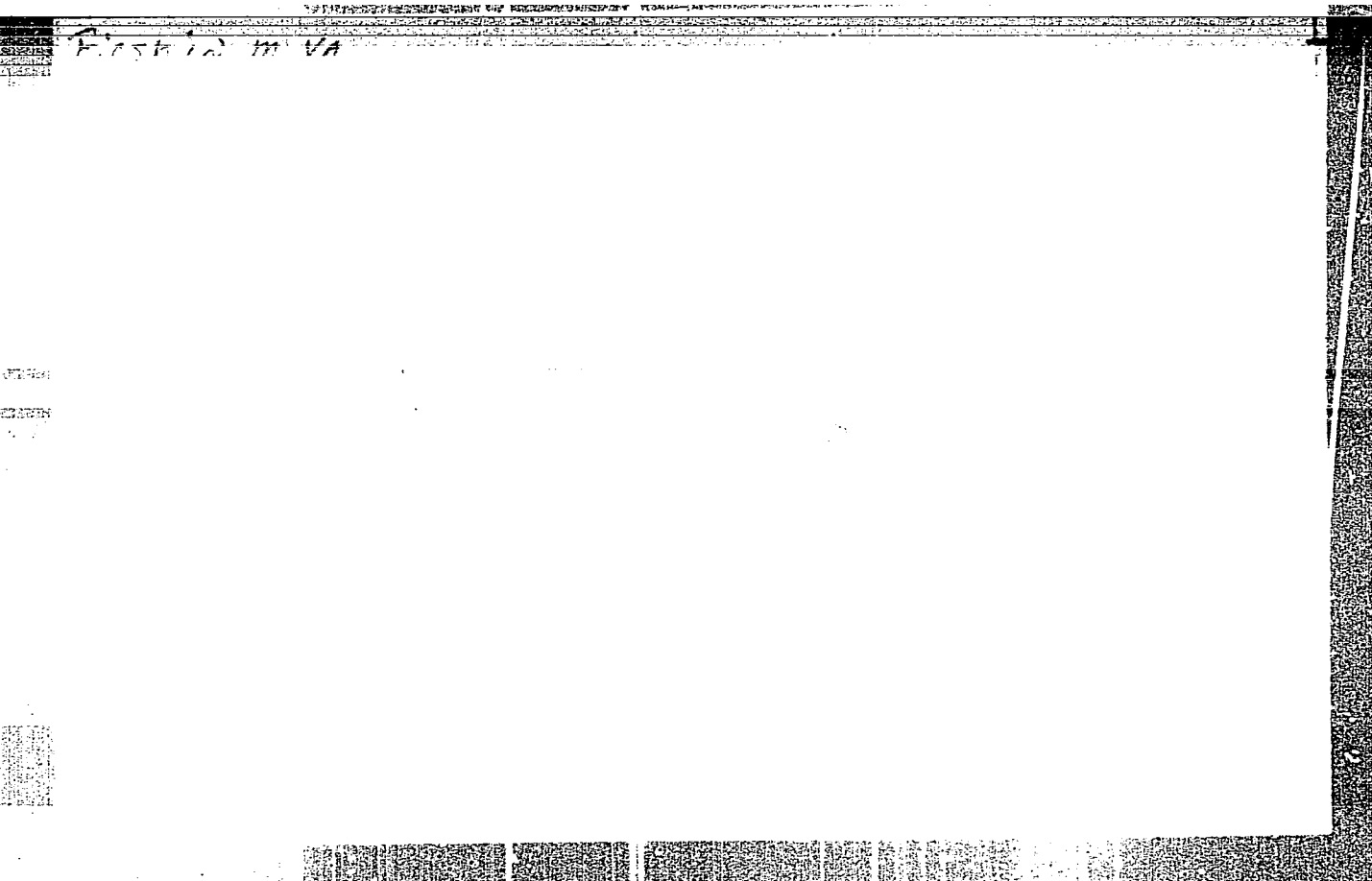
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APPROVED FOR RELEASE: 06/13/2000

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*FIOSHIN, M. YA.*

"Lowering of Electrode Potentials in Industrial Electrolysis,"  
by V. G. Khomyakov, Candidate of Technical Sciences and M. Ya.  
Fioshin, Candidate of Technical Sciences, Khimicheskaya Promy-  
shlennost', No 1, Jan/Feb 57, pp 30-32

After a detailed discussion on the basis of published data of the ef-  
fects on overvoltage of the mechanical treatment (sand blasting) of the  
electrode surface, plating of the surface of the cathode or anode with  
metals or metal alloys, and deposition of dispersed metal (sponge metal)  
on the electrode surface, the reasons why the electrode potential is re-  
duced when the surface of the electrode has been increased are subjected  
to consideration. The following conclusions are drawn from the data sum-  
marized in the article:

*SUM 1345*

FIDSHIN, M. YA.

"Experiments conducted by many investigators show that the potentials at which hydrogen and oxygen evolve in the electrolysis of water and the potential at which hydrogen evolves in the electrolysis of chlorides can be considerably lowered if the overvoltage is reduced by mechanical, chemical, or electrochemical treatment of the surface of the electrode in such a manner that this surface is increased. The lowering of potential achieved by this means generally amounts to 0.2-0.4 volt, which results in a considerable savings of electrical power (10-15% in the electrolysis of water and 5-10% in the electrolysis of sodium chloride). The best method of lowering the potentials of the evolution of hydrogen and oxygen in electrolysis comprise deposition of iron or nickel sponge on the surface of the electrode or coating the electrode with an alloy consisting of Ni and S. Extensive research must be done with the view of developing new electrode coatings which will reduce the overvoltage connected with the evolution of hydrogen and oxygen, will keep the potential constant in time in the presence of different impurities, and may be expected to exhibit sufficient corrosion resistance during the operation of industrial electrolysis cells."

The bibliography appended to the article lists 13 USSR references, 8 references to work done in Japan by K. Kanzaki, one US reference, and one Swiss reference. (U)

Sum 1845

*Fioshin, M. Ya*

AUTHORS: Gus'kov, V.A., Fioshin, M.Ya.

76-11-29/35

TITLE: A Method for Polarization Measurements in Solutions of Low Electric Conductivity (Metodika polyarizatsionnykh izmereniy v slabo elektroprovodnykh rastvorakh)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 11, pp.2575-2577 (USSR)

ABSTRACT: On the basis of an example concerning solutions in glacial acetic acid a method for measuring polarization is described. A system consisting of an ordinary potentiometer  $\Pi-4$  and an amplification attachment  $\Pi\Pi-2$  is used. When recording polarization curves the authors met with difficulties: While the motor of the thermostat stirring device, or when connecting various resistances to the polarization circuit, the capacity of the casing changed although it always had the same potential when measured. Therefore the amplifier casing must, above all, be very carefully earthed. Besides, the line from the calomel-semi-element must be carefully screened. The latter must in all cases be connected with the network. There is 1 figure.

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A Method for Polarization Measurements in Solutions of Low Electric  
Conductivity 76-11-29/35

ASSOCIATION: Moscow Chemical-Technological Institute imeni D.I.Mendeleyev  
(Khimiko-tekhnologicheskii institut im. D.I.Mendeleyeva, Moskva)

SUBMITTED: November 6, 1956

AVAILABLE: Library of Congress

Card 2/2

V. Electrochemical synthesis of lead tetraacetate. <sup>7</sup> M. Ya. Floshe and V. A. Gus'kov (D. I. Mendeleev Chem. Technol. Inst., Moscow), *Doklady Akad. Nauk S.S.S.R.* 112, 303-6 (1957).— $Pb(OAc)_4$  is produced upon the anode during electrolysis in glacial  $AcOH$  and is of practical interest as a strong oxidizing agent, to be preferred over  $PbO_2$  because of its soly. in  $AcOH$ ,  $C_6H_6$ ,  $CHCl_3$ ,  $C_2H_5NO_2$ , etc. The possible formation of a film of  $Pb(OAc)_4$ , poorly sol. in  $AcOH$ , which screens the anode, was tested by detg. the anodic polarization curve during electrolysis. A sharp increase of c.d. increased the formation of such a film. The critical c.d., i.e. the c.d. at which the potential rises sharply, depends greatly on the temp.,  $Pb(OAc)_4$ , and  $KOAc$  concns., and is higher at higher temps. and concns. of the salt. The exptl. results indicated the following optimum concns. for the electrochem. synthesis of  $Pb(OAc)_4$ : the soln. comprn. 2.1N  $Pb(AcO)_2$  and 0.52N  $KAcO$ ; the anode section temp. 65°, c.d. on the anode 0.3 amp./sq. cm. The yield was 68% on the current consumed.

W. M. Sternberg

Rumof

AUTHORS: Fioshin, M. Ya., Popova, Ye. S.,  
Tomilov, A. P.

SOV/15658-3-33/52

TITLE: The Electrolysis of Potassium Bifluoride Solution in Anhydrous Acetic Acid (Elektroliz rastvora biftorida kaliya v bezvodnoy ukusnoy kislote)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 533 - 535 (USSR)

ABSTRACT: The products of the electrolysis of potassium bifluoride in anhydrous acetic acid solution with an insoluble anode were investigated. The electrolysis was carried out in cells without a diaphragm to separate the anodic from the cathodic space. The results obtained showed that a change in the current density from 0,01 to 0,1 A/cm<sup>2</sup> as well as an increase in temperature from 20 to 70°C do not influence the character of the electrolytic process. The results obtained showed that at the cathode hydrogen is formed in quantity according to Faraday's Law. Ethane, acetylfluoride and CO<sub>2</sub> occur in addition to hydrogen as the gaseous products formed in the electrolysis. Besides acetic acid methylacetate was also found in the liquid products formed in the

Card 1/2

The Electrolysis of Potassium Bifluoride Solution in Anhydrous Acetic Acid SOV/15658-3-33/52

electrolysis. 90% of the current was consumed at the platinum electrode for the formation of ethane and  $\text{CO}_2$  according to the Kolbe reaction. The rest served for the destruction of the anode and for the formation of methylalcohol according to the Hofer-Moest reaction. There are 1 table and 5 references, 0 of which is Soviet.

ASSOCIATION:

Kafedra tekhnologii elektrokhimicheskikh proizvodstv Moskovskogo khimiko-tekhnologicheskogo instituta im. D.I. Mendeleeva (Chair for the Technology of Electrochemical Products of the Moscow Chemical and Technological Institute imeni D.I. Mendeleev)

SUBMITTED: September 26, 1957

Card 2/2

KHOMYAKOV, V.G., kand.tekhn.nauk; FIOSHIN, M.Ya., kand.tekhn.nauk;  
KRUGLIKOV, S.S.

Electrochemical synthesis of organic substances. Khim. nauka i prom.  
3 no.4:432-438 '58. (MIRA 11:10)  
(Chemistry, Organic--Synthesis)  
(Electrochemistry)

SCV/64-58-6-4/15

AUTHORS: Khomyakov, V. G., Candidate of Technical Sciences, Pioshin,  
M. Ya., Candidate of Technical Sciences

TITLE: Electrochemical Methods for the Synthesis of Hydroxylamine  
(Elektrokhimicheskiye sposoby sinteza gidroksilamina)

PERIODICAL: Khimicheskaya promyshlennost', 1958, Nr 6, pp 335-340 (USSR)

ABSTRACT: The development of the production of caprolactam, which is the raw material of the synthetic fiber "Kapron", has in recent years stimulated interest in the synthesis of hydroxylamine, which is also used in the synthesis of such products as dimethyl glyoxime and isonitroso acetanilide. There are three methods of industrial production of hydroxylamine: 1) the method suggested first by Raschig (Rashig) (Ref 4), 2) the method commonly used in the United States by which nitro compounds of the aliphatic series are treated with concentrated solutions of mineral acids, and 3) the synthesis which consists of an electroreduction of nitric acid, nitrates, or nitrites. As far as the latter method is concerned, the references in question stress the technical importance of this process, but no further details are given. In connection

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SOV/64-58-6-4/15

Electrochemical Methods for the Synthesis of Hydroxylamine

with the electroreduction of nitric acid the data given by Acworth and Armstrong (Akvor, Armstrong) (Ref 11) are mentioned. The first product of the reduction of nitric acid is nitrous acid which, according to Sihvonen (Sivonen) (Ref 12), forms a hypothetical bivalent acid with nitric acid. Furthermore, the formation of nitric oxide, hyponitrous acid, nitrogen suboxide, nitrogen and ammonia is discussed, and the conditions for a profitable production of hydroxylamine defined. In the discussion of the composition of the electrolyte, of the material of electrodes, of current density and temperature there are mentioned, among other things, data given by Tscherbakov and Libina (Shcherbakov and Libina) (Ref 17), Tafel (Ref 24), and Lazzari (Ref 26). In connection with the data used for the comparison of the chemical and electrochemical synthesis of hydroxylamine current prices of the ~~Krasnoyarskaya~~ GES and the power plants of the Angarsk Waterfalls are given. A number of advantages of the electrochemical method are enumerated. There are 3 tables and 39 references, 3 of which are Soviet.

Card 2/2

AUTHORS: Fioshin, M. Ya., Kazakova, L. I. SOV/79-28-8-1/66  
 TITLE: Synthesis of Lead Tetraacetate,  $Pb(CH_3COO)_4$ , by Electrochemical  
 Oxidation of Lead Acetate at the Anode (Sintez tetraatsetata  
 svintsa elektrokhimicheskim okisleniyem diatsetata svintsa  
 na anode)  
 PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp. 2005-2007  
 (USSR)  
 ABSTRACT: The chemical synthesis of lead tetraacetate, which is a strong  
 oxidizing reagent (Ref 1), is carried out by reacting red  
 lead with glacial acetic acid (Ref 2). In this reaction only  
 one third of the lead is used up. Two thirds of the lead is  
 reacted when chlorine is added to the reaction mixture, but  
 the removal of the remaining lead chloride is difficult. After  
 purification and separation processes the final result in this  
 case is a 40-50 % yield. Of the many attempts to carry out  
 the synthesis electrochemically only the work of Schall and  
 Melzer (Ref 4) (Shall', Mel'tser) can be cited as successful.  
 In this method lead diacetate is oxidized at the platinum  
 anode in glacial acetic acid (1-2 % water) which contains  
 sodium acetate, and a yield of 80 % lead tetraacetate results.

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SOV/79-28-3-1/66

Synthesis of Lead Tetraacetate,  $\text{Pb}(\text{CH}_3\text{COO})_4$ , by Electrochemical Oxidation of Lead Acetate at the Anode

This yield decreases to 26% after 30 minutes, however, and then gradually decreases to practically nothing. It had previously been shown that the cause of this decomposition was the formation of a film of lead tetraacetate on the anode, thus hindering the reaction. Schall and Melzer avoided high temperatures where the tetraacetate would be decomposed by the water (1-2%) present in the acetic acid. In previous work by the authors (Ref 5) an electrolysis was carried out in dehydrated glacial acetic acid containing potassium acetate at 85° in order to dissolve the tetraacetate film. This work indicated the possibilities of converting lead diacetate into lead tetraacetate by electro-oxidation. In the present paper is given for the first time a method for synthesizing lead tetraacetate by electrochemical oxidation of the lead diacetate at the platinum anode as well as at the lead peroxide anode. The details of this synthetic process are given in the experimental section. There are 1 figure and 6 references, 3 of which are Soviet.

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GOV/76-28-3-1/66  
Synthesis of Lead Tetraacetate,  $\text{Pb}(\text{CH}_3\text{COO})_4$ , by Electrochemical Oxidation  
of Lead Acetate at the Anode

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskoy institut imeni D. I.  
Mendeleeva  
(Moscow Chemical Technology Institute imeni D. I. Mendeleev)

SUBMITTED: July 6, 1967

Card 5/5

5(1) 5(2)  
AUTHORS:

SOV/64-59-4-4/27  
Khomyakov, V. G., Fioshin, M. Ya., Tomilov, A. P.

TITLE:

Electrochemical Methods of the Synthesis of Some Initial Materials for High Polymers (Elektrokhimicheskiye metody sinteza nekotorykh iskhodnykh materialov dlya vysokopolimerov)

PERIODICAL:

Khimicheskaya promyshlennost', 1959, Nr 4, pp 16 - 20 (USSR)

ABSTRACT:

Some examples of applying electrolytical methods for the production of polymers are given and discussed. Manufacturing methods of raw materials being important for the production of polyamide resins, as for example hexamethylene diamine or adipinic acid dinitrile and dibasic dicarboxylic acids, among them mainly sebacic acid, are discussed. Also the production of organofluorine compounds by electrochemical fluorination of the dissolved organic substances or carbon chlorides are discussed. The electrosyntheses of pinacon being important for the production of some types of rubber is also described. It is pointed to the fact that the theoretically interesting electrochemical initiation of the polymerisation reaction will also be of practical importance. These reactions, however, are not yet sufficiently investigated and further investigations have

Card 1/2

Electrochemical Methods of the Synthesis of Some  
Initial Materials for High Polymers

SOV/64-59-4-4/27

to be carried through. By means of the electrochemical initiation of the methyl methacrylate polymerisation the course of the polymerisation initiation is represented according to data by G. Parravano (Ref 39). There are 40 references, 5 of which are Soviet.

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0.0000

77283  
SOV/63-4-6-17/37

AUTHOR: Fioshin, M. Ya.

TITLE: Second All-Union Conference on Organic Electrochemistry

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4,  
Nr 6, pp 790-793 (USSR)

ABSTRACT: The conference was organized by the Section of Electrochemistry of D. I. Mendeleev All-Union Chemical Society and Institute of Electrochemistry of the Academy of Sciences of the USSR, and it was held in Moscow in June 1959. More than 100 representatives from 41 scientific organizations were present. Academician A. N. Frumkin in his introductory speech stressed the importance of organic electrochemistry and indicated the need for new preparative methods and study of the mechanism of electrode processes. The following reports were presented: V. G. Khomyakov and A. P. Tomilov (Moscow), application of the electrolysis of organic compounds in industry; V. N. Nikulin (Kazan'), the effect of crystalline structure of electrodes on electroreduction of

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Second All-Union Conference on Organic  
Electrochemistry

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SOV/63-4-6-17/37

some organic acids; M. S. Petrova (Moscow), electrochemical synthesis of labelled organic preparations; O. S. Ksenzhek and V. V. Stender (Dnepropetrovsk), the use of hollow electrodes in organic synthesis; N. G. Bakhchisarayts'yan, M. Ya. Fioshin, S. S. Kruglikov, L. I. Kazakova, and E. A. Dzhafarov (Moscow), electrochemical preparation of insoluble anode from lead dioxide and the use of this electrode for organic electrosynthesis; S. L. Varshavskiy, A. P. Tomilov, and L. V. Kaabak (Moscow), electrochemical synthesis of adipodinitrile; V. G. Khomyakov, D. Ya. Gusakova, K. V. Krivolutskiy (Moscow), M. V. Khrulev, Sh. S. Shchegol', L. G. Galkin, A. G. Artem'yev (Dzerzhinsk), electrochemical reduction of adipodinitrile in hexamethylenediamine; V. G. Khomyakov, M. Ya. Fioshin, I. A. Avrutskaya, and I. V. Chvankin (Moscow), electroreduction of nitrocyclohexane; A. I. Fedorova, I. V. Shelepin, and N. B. Moiseyeva (Moscow), initiation of the polymerization of methyl methacrylate in acid solutions on mercury cathode; S. S. Kruglikov, V. G. Khomyakov, and L. I. Kazakova (Moscow), electrochemical

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Second All-Union Conference on Organic  
Electrochemistry

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SOV/63-4-6-17/37

oxidation of pyridine bases; V. A. Smirnov and M. G. Smirnova (Novocherkassk), the use of amalgams for reduction of organic compounds; A. A. Ponamarev and I. A. Markushina (Saratov), electrolytic aloxylation of furan compounds; N. Ye. Khomutov, T. N. Filippova, A. M. Aboimov, I. V. Kasatonova, and G. Zhukova (Moscow), electrolysis of the aqueous solutions of m-nitrobenzenesulfonic acid and its sodium salt; N. Ye. Khomutov, Z. Khaschi, and L. I. Yurkov (Moscow), electrolysis of aniline solutions; N. Ye. Khomutov and M. G. Khachatryan (Moscow), electrolysis of potassium acetate; I. I. Aryamova (Moscow), the effect of stirring on the rate of electrochemical oxidation and reduction of organic substances; S. B. Averbukh and A. M. Skundin (Moscow), electrochemical oxidation of phenoxyethanol into phenoxyacetic acid; G. P. Khomchenko, L. Ya. Krasnikova, A. I. Pletyushkina, T. M. Rzhishcheva, V. M. Tsintsevich, G. D. Vovchenko (Moscow), investigation of the hydrogenation and adsorption of organic substances on platinum and rhodium electrodes; M. Ye. Manzheley

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Second All-Union Conference on Organic  
Electrochemistry

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SOV/63-4-6-17/37

(Kishinev), the mechanism of the electrochemical reduction of unsaturated organic compounds; S. G. Mayranovskiy and L. D. Bergel'son (Moscow), the effect of the geometrical isomerism of organic compounds on their polarographic behavior; V. D. Bezuglyy (Khar'kov), utilization of polarography for investigation of the state of some substances in solution; Yu. P. Kitayev (Kazan'), polarographic study of the tautomerism and geometric isomerism of some semi- and thiosemicarbazones; and Ya. Stradyn' (Riga), application of the Hammett equation for polarographic reduction of nitro compounds. Altogether, 25 reports were presented.

Card 4/4

5 (1,3)

AUTHORS:

Kamneva, A. I., ~~Fioshin, M. Ya.~~, SOV/20-126-1-24/62  
Yefimenkova, A. I., Vasil'yev, Yu. B.,  
Muzychenko, L. A.

TITLE:

Investigation of the Process of Electrochemical Condensation  
of the Mono-2-ethyl-hexyl-ester of Adipic Acid (Izucheniye  
protssessa elektrokhimicheskoy kondensatsii mono-2-etilgeksilo-  
vogo efira adipinovoy kisloty)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 90 - 92  
(USSR)

ABSTRACT:

The demand for high-molecular dicarboxylic acids and their  
esters rose. The process mentioned in the title is therefore  
theoretically as well as practically interesting. It proceeds  
on the anode in the case of the electrolysis of the monoester-  
-salt-solution in the aqueous and nonaqueous electrolyte (Ref  
1). The authors obtained in this investigation for the first  
time the sebacic acid-di-2-ethyl-hexyl-ester by electrosynthe-  
sis which is used as the main component of high-quality lubri-  
cants. Nonaqueous electrolytes are scarcely suitable for the  
mentioned purpose. The authors used therefore an aqueous elec-  
trolyte of the following composition: 300-400 g/l of the ester

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Investigation of the Process of Electrochemical  
Condensation of the Mono-2-ethyl-hexyl-ester of  
Adipic Acid

SOV/20-126-1-24/62

mentioned in the title, 30-50 g/l  $K_2CO_3$  and 600-700 ml/water. Anode and cathode were of platinum. No diaphragm was used. Temperature 20-30°. The current density fluctuated at the anode between 10 and 60 a/dm<sup>2</sup>. The yield of the main product: the sebacic acid-di-2-ethyl-hexyl-ester did not change with the current density. It amounted to 55% of the theoretical one. An intensive foam formation reduces the electrolyte considerably. This was eliminated by the isolating extraction with diethyl-ether. Finally the processes possible on the anode are discussed by means of the reactions (1) - (10). The hydrogen-superoxide theory of the electrosynthesis of Kolbe which was developed in most recent time by Glesstone (Ref 5) was in this case not confirmed (in line with Ref 6). Although the electrochemical condensation of the monoesters of dicarboxylic acids is to a certain extent similar to the electrosynthesis of Kolbe, the first mentioned one is a much more complicated process. The rules which govern the most simple case of an electrolysis of

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Investigation of the Process of Electrochemical  
Condensation of the Mono-2-ethyl-hexyl-ester of  
Adipic Acid

SOV/20-126-1-24/62

the monobasic carboxylic acids must therefore not hold in the  
case of the first mentioned process. There are 6 references,  
1 of which is Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I.  
Mendeleyeva (Moscow Institute of Chemical Technology imeni  
D. I. Mendeleyev)

PRESENTED: February 21, 1959, by A. N. Frumkin, Academician

SUBMITTED: February 17, 1959

Card 3/3

S/153/60/003/003/018/036/XX  
B016/B058

AUTHORS: Fioshin, M. Ya., Khazova, O. A.

TITLE: Study of the Anodic Process at the Electrolysis of Mixtures From Sulfuric Acid and Acetic Acid. I. Study of the Kinetics Dependence of the Anodic Process on the Composition of the Mixtures From Sulfuric Acid and Acetic Acid

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 3, pp. 443 - 446

TEXT: The authors report on their study of the anodic reaction at the d.c. electrolysis of a mixture from anhydrous sulfuric acid and acetic acid ( $H_2SO_4$  and  $CH_3COOH$ ). They presumed the existence of solvents in these systems and studied their influence on the kinetics of the anodic process. The method of the curves of polarization was used therefore. The electrolytic cell represented an H-type vessel, in which the cathode

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Study of the Anodic Process at the Electrolysis of Mixtures From Sulfuric Acid and Acetic Acid. I. Study of the Kinetics Dependence of the Anodic Process on the Composition of the Mixtures From Sulfuric Acid and Acetic Acid

S/153/60/003/003/018/036/XX  
B016/B058

and anode space were separated by a cock. The anode consisted of carefully polished platinum, its design corresponding to that by N. A. Izgaryshev and Ye. A. Yefimov (Ref.9). A sulfate electrode  $\text{Hg} \parallel \text{Hg}_2\text{SO}_4$ , filled with saturated  $\text{Na}_2\text{SO}_4$  solution, served as reference electrode. The curves of polarization (Fig.1) determined by the author covered a concentration range of  $\text{H}_2\text{SO}_4$  in the mixture from 20 to 100 mole% and were recorded for 13 compositions within this range. On the basis of these results the authors state in conclusion that the equation by Tafel is valid in the investigated system during the electrolysis for a wide concentration range at current densities between  $2.22 \cdot 10^{-5}$  and  $2.22 \cdot 10^{-3} \text{ a/cm}^2$ . The curve of the dependence of the coefficient  $b$  (in the equation by Tafel  $b = \frac{d\varphi_a}{d \log I_a}$ ,  $\varphi_a$  being the anode

Card 2/3

Study of the Anodic Process at the  
Electrolysis of Mixtures From Sulfuric

S/153/60/003/003/018/036/XX  
B016/B058

Acid and Acetic Acid. I. Study of the Kinetics Dependence of the Anodic  
Process on the Composition of the Mixtures From Sulfuric Acid and  
Acetic Acid

potential and  $I_a$  the current density) on the composition of the solution  
shows a distinct break at the point corresponding to the equivalent com-  
pound  $\text{CH}_3\text{COOH} \cdot \text{H}_2\text{SO}_4$  (Fig.2). The authors take this as proof for the as-  
sumption that the kinetics of the anodic process is influenced by sol-  
vents. They mention the papers by M. Usanovich and collaborators  
(Refs. 4-7). There are 2 figures and 11 references: 7 Soviet, 2 US, and  
2 German.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut  
im. D. I. Mendeleeva; Kafedra tekhnologii elektro-  
khimicheskikh proizvodstv (Moscow Institute of Chemical  
Technology imeni D. I. Mendeleev; Chair of Technology  
of the Electrochemical Plants)

SUBMITTED: October 20, 1958

Card 3/3

FIOSHIN, M.Ya.; KHAZOVA, O.A.

Anodic process in the electrolysis of mixtures of sulfuric and acetic acids. Part 1: Kinetics of the anodic process as a function of the composition of mixtures of sulfuric and acetic acids. Izv.vys.ucheb.zav.;khim. i khim.tekh. 3 no.3:443-446 '60. (MIRA 14:9)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleeva, kafedra tekhnologii elektrokhimicheskikh proizvodstv. (Sulfuric acid) (Acetic acid) (Electrolysis)

S/153/60/003/004/015/040/XX  
B020/B054

AUTHORS: Fioshin, M. Ya., Khazova, O. A., Ignat'yeva, L. A.

TITLE: Study of the Anode Process in the Electrolysis of Mixtures of Sulfuric and Acetic Acid. II. Effect of the Solution Composition on the Ratio of Components in the Mixture of Anode Gases

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 4, pp. 637 - 641

TEXT: The authors attempted to study the composition of gases liberated from the anode in the electrolysis of an anhydrous mixture of sulfuric and acetic acid, and their dependence on the composition of the solution. The gases liberated from the anode were analyzed by a BTM-2 (VTI-2) gas analyzer. The analytical method was based on a successive and selective absorption of the principal components of the gas mixture by various absorbents, and on a combustion of hot gases with subsequent analysis of the combustion products. The authors determined CO<sub>2</sub> by 33% KOH, the

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Study of the Anode Process in the S/153/60/003/004/015/040/XX  
Electrolysis of Mixtures of Sulfuric and H<sub>2</sub>O<sub>2</sub>/B054  
Acetic Acid. II. Effect of the Solution Composition on the  
Ratio of Components in the Mixture of Anode Gases

unsaturated hydrocarbons by a KBr solution saturated with bromine vapors, O<sub>2</sub> by a basic pyrogallol solution, CO by a Cu<sub>2</sub>O suspension in concentrated H<sub>2</sub>SO<sub>4</sub> absorbed with  $\beta$ -naphthol, H<sub>2</sub> by combustion over CuO at 270-280°C, and the saturated hydrocarbons by combustion over CuO at 850-950°C. Sulfuric and acetic acid must be highly pure, and not contain any water. Electrolysis was conducted in a cylindrical glass vessel with a ground-in glass stopper, with fused-in electrodes, and a tube to draw off the gas. The anode used was a smooth platinum net with a surface of 63.5 cm<sup>2</sup>. The anode space was separated from the cathode space by a ceramic diaphragm. The current source used was a storage battery with a voltage of 80 v. Electrolysis was conducted in an anhydrous H<sub>2</sub>SO<sub>4</sub> - CH<sub>3</sub>COOH mixture in an interval of 20-80 mole% of H<sub>2</sub>SO<sub>4</sub>. Ten different compositions (20, 25, 30, 33, 35, 45, 50, 55, 60, and 80% H<sub>2</sub>SO<sub>4</sub>) were analyzed. For each composition, the gas analysis was conducted at three current densities:  $2.78 \cdot 10^{-4}$ ,  $5.5 \cdot 10^{-4}$ , and

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Study of the Anode Process in the S/153/60/003/004/015/040/XX  
Electrolysis of Mixtures of Sulfuric and B020/B054  
Acetic Acid. II. Effect of the Solution Composition on the  
Ratio of Components in the Mixture of Anode Gases

$1.58 \cdot 10^{-3} \text{ a/cm}^2$ , which corresponded to the lower, central, and upper part of the curve  $\varphi_a = f(\log I_a)$ . The change in the ethane- (Fig.1), carbon dioxide- (Fig.2), and oxygen content (Fig.3) in dependence on the solution composition was observed. The Kolbe synthesis proceeded in a mixture containing up to 50 mole% of  $\text{H}_2\text{SO}_4$  at current densities of from  $2.78 \cdot 10^{-4}$  to  $1.58 \cdot 10^{-3} \text{ a/cm}^2$ . Besides the Kolbe synthesis, an intensive oxidation of acetic acid to  $\text{CO}_2$  and water is likely to proceed on the anode. At concentrations higher than 50 mole% of  $\text{H}_2\text{SO}_4$ , this reaction proceeds jointly with the release of oxygen. The formation of solvates influences the composition of anode gases. In the diagram  $C_{\text{O}_2} = f(C_{\text{H}_2\text{SO}_4})$ , the points of solvate formation correspond to the maximum, in the diagram  $C_{\text{CO}_2} = f(C_{\text{H}_2\text{SO}_4})$  to the minimum. N. I. Dedusenko (Ref.5) is mentioned. There are 3 figures and 10 references: 3 Soviet,

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Study of the Anode Process in the S/153/60/003/004/015/040/XX  
Electrolysis of Mixtures of Sulfuric and B020/B054  
Acetic Acid. II. Effect of the Solution Composition on the  
Ratio of Components in the Mixture of Anode Gases

3 British, 3 German, and 1 Swiss.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im.  
D. I. Mendeleyeva, kafedra tekhnologii elektrokhimiche-  
skikh proizvodstv (Moscow Institute of Chemical Technology  
imeni D. I. Mendeleyev. Department for the Technology of the  
Electrochemical Industry)

SUBMITTED: October 20, 1958

Card 4/4

S/064/60/000/005/002/009  
B015/B058

AUTHORS: Fioshin, M. Ya., Kamneva, A. I.

TITLE: Electrochemical Synthesis of Sebacic Acid and Its Diesters

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 5, pp. 7 - 10

TEXT: Explanations and experimental results of the electrochemical synthesis of sebacic acid and its esters are given, experiments by the authors and data from publications being mentioned. The Brown-Walker reaction is mentioned in the introduction as well as the production of dimethyl sebacate carried out on this basis at Leuna (Germany) during World War II. The patent for the investigations conducted at Leuna, by Offe (1952) (Ref. 10), formulates that the yield of dimethyl sebacate strongly depends on the presence of free adipic acid. The authors of the paper under review ascertained that a maximum yield of 75% is obtained under the working conditions mentioned by Offe, while the yield increases to 80% when the concentration of the sodium methylate is reduced to 0.07 N. Since working with methanol shows some drawbacks, it was attempted to carry out the electrosynthesis of the diesters of sebacic acid in

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Electrochemical Synthesis of Sebacic Acid  
and Its Diesters

S/064/60/000/005/002/009  
B015/B058

aqueous solutions. The electrolysis of the solutions of 200-400 g of mono-2-ethyl-hexyl adipate and 20-30 g of  $K_2CO_3$  in 600-800 ml of  $H_2O$  proved to be an optimum with a current density of  $1000-6000 \text{ a/m}^2$  at the anode and a temperature of  $20-30^\circ\text{C}$ . The yield of di-2-ethyl-hexyl sebacate amounts to 50-55%, i.e., considerably less than that from methanol solutions. The production of sebacic acid by electrolysis of a solution of butadiene and potassium monoethyl oxalate, or-maleate in methanol according to Lindsey and Peterson (Refs. 18,19) is of special interest. This reaction should still be studied and further developed for the purpose of increasing the yield, since the latter amounts only to about 15%. There are 19 references: 9 Soviet, 3 US, and 5 German.

Card 2/2

FIOSHIN, M. Ya.; KAMNEVA, A. I.

Electrochemical syanthesis of sebacic acid and its diesters.  
Khim.prom. no.5:359-362 J1-Ag '60. (MIRA 13:9)  
(Sebacic acid)

S/191/60/000/010/001/017  
B004/B060

AUTHORS: Fioshin, M. Ya., Tomilov. A. P.

TITLE: Production of Polymers by Electrochemistry

PERIODICAL: Plasticheskiye massy, 1960, No. 10, pp. 2-5

TEXT: This is a survey of Western literature and Western patents concerning the bringing about of polymerization by the electrolytical formation of free radicals. Western papers concerning the polymerization of styrene, acrylonitrile, methyl methacrylate, and particularly halogen olefins are discussed. As to the latter the advantage is pointed out that neither high pressure nor high temperature are required for polymerization by free radicals formed by electrolysis. The use of anhydrous solvents and high monomer concentrations is said to be promising. There are 20 references: 5 Soviet, 7 US, 2 British, and 6 German. ✓

Card 1/1

AUTHORS: Avrutskaya, I. A., Khomyakov, V. G.,  
Fioshin, M. Ya.

S/076/60/034/03/034/038  
B005/B016

TITLE: Reduction of Nitrocyclohexane on the Dropping Mercury Cathode

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 691-692 (USSR)

TEXT: In connection with the investigation of the electrochemical reduction of nitrocyclohexane the authors studied the reduction of this compound on a dropping mercury electrode. Measurements were carried out on PE-312<sup>28</sup> and M-103<sup>28</sup> polarographs. A saturated calomel electrode was used as an auxiliary electrode. As nitrocyclohexane is poorly soluble in water, 20% alcoholic solutions were investigated. The buffer mixtures used for the adjustment of various pH ranges are given. Figure 1 shows the polarogram of nitrocyclohexane in a solution of  $\text{Na}_2\text{HPO}_4$  and citric acid with pH 2.2. At pH 1 - 4 only one wave occurs which corresponds to the reduction of nitrocyclohexane to cyclohexyl hydroxylamine. At pH 5 - 7 a second wave appears in the polarogram, which does not occur in stronger acid solutions owing to hydrogen separation. The second wave has only about half the strength of that of the first wave; the acceptance of two electrons corresponds to it according to the Ilkovich equation. The second wave therefore corresponds to the reduction of cyclohexyl hydroxylamine to cyclo-

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Reduction of Nitrocyclohexane on the Dropping  
Mercury Cathode

S/076/60/034/03/034/038  
B005/B016

hexylamine. At pH 9 - 11 again only the first wave appears. The second polarographic wave of nitrocyclohexane is thus stable only in a small pH range. At pH 11 - 12 the limiting current of the first wave begins to drop gradually, and in 0.1 N potassium hydroxide nitrocyclohexane is not reduced any longer on the dropping mercury electrode. This reduction of the diffusion current is obviously due to a tautomeric transition of the nitro compound occurring in molecular form in alkaline medium to the anionic form of a pseudo-acid, which is not reduced at the attainable potentials. In the electrochemical reduction of nitrocyclohexane on cathodes of platinum, copper, and lead in acid solutions the authors obtained cyclohexyl hydroxylamine as reaction product in a wide pH-range. The oxime of caprolactam could not be detected among the products. The reason for this phenomenon is the impossibility of stopping the reduction process at the stage of nitroso-cyclohexane from which the oxime of caprolactam results by rearrangement (Ref 3). The potentials at which nitroso-cyclohexane is reduced are less negative than in the case of nitrocyclohexane; it is therefore not concentrated in the solution, but is further reduced to give cyclohexyl hydroxylamine. The rate of this reduction is evidently higher than the rate of rearrangement, so that the wave of reduction to nitroso-cyclohexane does not

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Reduction of Nitrocyclohexane on the Dropping  
Mercury Cathode

S/076/60/034/03/034/038  
B005/B016

appear in the polarogram of nitrocyclohexane. Figure 2 shows the polarograms of nitrocyclohexane and cyclohexyl hydroxylamine at pH 6 in a solution of  $\text{Na}_2\text{HPO}_4$  and citric acid. There are 2 figures and 3 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva  
(Moscow Institute of Chemical Technology imeni D. I. Mendeleev)

SUBMITTED: July 31, 1959

Card 3/3

FIOSHIN, M.Ya.; VASIL'YEV, Yu.B.

Anode processes in the electrolysis of salts of carboxylic acids.  
Dokl.AN SSSR 134 no.4:879-882 0 '60. (MIRA 13:9)

1. Institut elektrokhemii Akademii nauk SSSR. Predstavleno akad.  
A.N. Frumkinym.  
(Electrolysis) (Salts)

FIOSHIN, M.Ya.; VASIL'YEV, Yu.B.; GAGINKINA, Ye.G.

Influence of the nature of the cation on the Kolbe electrosynthesis.  
Dokl. AN SSSR 135 no.4:909-912 '60. (MIRA 13:11)

1. Institut elektrokhemii Akademii nauk SSSR. Predstavleno  
akademikom A.N.Frumkinym.  
(Reduction, Electrolytic) (Oxidation, Electrolytic)  
(Acetates)

S/063/61/006/002/002/004  
A105/A129

AUTHOR: Fioshin, M. Ya., Candidate of Technical Sciences

TITLE: III All-Union Conference on the electrochemistry of organic compounds

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva im. D. I. Mendeleyeva, 1961, v. 6, no. 2, 221 - 223

TEXT: The III Vsesoyuznoye soveshchaniye po elektrokhemii organicheskikh soyedineniy (III All-Union Conference on the Electrochemistry of Organic Compounds) took place at the end of 1960 in Moscow and was convened by the department of electrochemistry of the VKhO im. D.I. Mendeleyev and the Institut elektrokhemii AN SSSR (Institute of Electrochemistry of AS USSR). 22 papers were presented concerning the polarography of organic compounds, the kinetics of electrode processes and electrochemical synthesis. Academician A. N. Frumkin dealt with the achievements of the electrochemistry of organic compounds and referred to the problems of this field. S. G. Mayranovskiy, (Moscow) read on the achievements of polarography of organic compounds, stating that this method is used both for analysis and investigation of the structure and reactivity of

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III All-Union Conference on the electrochemistry ...

S/063/61/006/002/002/004  
A105/A129

organic compounds and the kinetics of their transformation. E. S. Levin (Moscow) discussed the kinetic features of the reduction of sulfoacids and the mechanism of the splitting-off of the sulfo-group. Ya. P. Stradyn' and S. A. Giller (Riga) read on the mechanism of the polarographic reduction of the nitro-group in the heterocycle. The deciding factor determining the reduction of the nitro-group is the polarity of the  $N \rightarrow O$  bond. Yu. P. Kitayev and G. K. Budnikov (Kazan') reported on results of a study on the polarographic behavior of the semi-carbazones and thiosemicarbazones of certain aliphatic-aromatic ketones. They established that the semicarbazones and the thiosemicarbazones exhibit a great analogy in their behavior on a mercury drop electrode. They concluded that in polarographic reduction of the investigated substances saturation of the multiple bond of the azomethene group takes place. S. G. Mayranovskiy and L. I. Lishcheta (Moscow) read on the polarographic investigation of the kinetics of the interaction of the maleic acid dianion with the proton donors. G. A. Tedoradze and S. G. Mayranovskiy (Moscow) presented a paper on the results of an investigation of the electro-chemical behavior of the solutions of pyridine. It was shown that in the electrolysis of the pyridine solutions in addition to catalytic formation of hydrogen the reduction of pyridine also takes place with dimerization or polymerization of the obtained products. L. I. Antropov, V. A. Smirnov, M. G.

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III All-Union Conference on the electrochemistry...

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A105/A129

Smirnova, V. D. Semchenko (Novocherkassk) reviewed the reduction process of carbon dioxide of sodium amalgam. . . T. I. Kononchuk, O. V. Bogmat and R. V. Zhironova (Kiyev) presented a paper where sodium amalgam was used for the synthesis of sodium methylate, employed in the vitamin and perfume industries. N. M. Przhiyalgovskaya, L. N. Lavrishcheva, G. G. Mondodoyev and V. N. Belov (Moscow) reported on the amalgam reduction of isomeric naphthene carboxylic acids in an aqueous medium in the presence of boric acid. S. A. Giller and G. P. Sokolev presented data on the work of a large electrolyzer, in which electrolytic methoxylation of furanes was carried out. A 20 amp electrolyzer was designed, equipped with a spiral-type freezer. Ye. P. Starostenko and N. F. Starostenko (Moscow) discussed the new design of a mercury drop electrode. The conditions of electrochemical synthesis of furyl alcóhol by reduction of the corresponding aldehyde-furfurole were discussed by M. Ye. Manzheley and V. A. Ivanova (Kishenev). Hg, Sn, Cd, Zn, Cu were used as the materials for the cathodes. The latter author also spoke on the effect of the nature of the substitute on the kinetics of electro-reduction of nitro-benzene. S. V. Gorbachev (Moscow) reviewed the intensification of the electrolytic processes by means of conducting electrochemical reactions at high temperatures (up to 300°C). S. L. Varshavskiy, L. V. Kaabak and A. P. Tomilov (Moscow) reported on the electro-

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III All-Union Conference on the electrochemistry...

S/063/61/006/002/002/004  
A105/A129

reduction of  $\alpha, \beta$ -saturated nitriles. The mechanism of hydrodimerization of acrylonitrile on a mercury cathode were discussed by L. G. Feoktistov and S. I. Zhdanov (Moscow). I. A. Mosevich, Zh. L. Vert and I. P. Tverdovskiy presented some information on the electrochemical reduction of maleic acid and m-nitrophenol on dispersed palladium-gold alloys. V. N. Nikulin (Kazan') reported on the electroreduction of fumaric and maleic acids in various planes of a silver monocrystal. A. V. Shashkina and I. I. Kulakova (Moscow) reviewed the processes of electroreduction of a number of organic compounds on a palladium-plated palladium electrode. M. Ya. Fioshin and G. P. Girina (Moscow) discussed the anode process in electrolysis of methyl alcohol in an alkaline medium. The paper of Yu. B. Vasil'yev and M. Ya. Fioshin dealt with the results of the study on anode processes in the electrolysis of the salts of carboxylic acids. Resolutions were adopted to further the development of the electrochemistry of organic compounds.

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53610 2204

31477  
S/080/61/034/012/016/017  
D243/D305

AUTHORS: Khomyakov, V.G., Fioshin, M.Ya., Avrutska, I.A., and Shih-chi, Ye.

TITLE: The electrochemical synthesis of cyclohexylhydroxylamine

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 12, 1961, 2788 - 2791

TEXT: Cyclohexylhydroxylamine is not produced on an industrial scale at present, but may serve as an intermediate product in the synthesis of materials for the plastics and lacquer-paint industries. The technological advantage of electrochemical synthesis is that it can be effected at ordinary temperatures and pressures. The present study is a follow-up of a previous report by the same team (Ref. 7: Tr. MKhTI, XXXII, 165, 1961) on the electrochemical reduction of nitrocyclohexane, in which cyclohexylhydroxylamine was formed as an intermediate product, the yield depending on the catalyte acidity and current density. The catalyte was a solution

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X

The electrochemical synthesis ...

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D243/D305

X  
of nitrocyclohexane in 99 % methyl alcohol, acidified with up to 7 %  $H_2SO_4$  or  $HCl$ . The current density was  $7.5 A/dm^2$  and nickel and lead cathodes were used. The catolyte temperature ( $20^\circ C$ ) and acid concentration were kept constant. On completion of electrolysis the methyl alcohol was distilled off and unreduced nitrocyclohexane removed. The solution obtained was brought to pH . 11 - 12 and the precipitated cyclohexylhydroxylamine filtered off. The yield was independent of  $H_2SO_4$  concentration, but rose considerably with an increase in  $HCl$  concentration to 4 %. The rise was much greater at the nickel cathode where a substance yield of 94 % and current yield of 77 % was obtained. This, the authors suggest, is due to the comparatively low hydrogen over-voltage on the nickel cathode which prevents reduction of cyclohexylhydroxylamine. On the lead cathode the hydrogen over-voltage is much greater, and as a result further reduction occurs to cyclohexylamine. There are 4 figures, 1 table and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: J. Robertson, J. Org. Chem., 13, 3, 395, 1948.

SUBMITTED: July 11, 1960

Card 2/2

FIOSHIN, M.Ya.; KAMNEVA, A.I.; MIRKIND, L.A.; SALMIN', L.A.

Additive electrochemical dimerization as a method of synthesizing  
dicarboxylic acids. Dokl.AN SSSR 138 no.1:173-176 My-Je '61.  
(MIRA 14:4)

1. Moskovskiy khimiko-tekhnologicheskij institut im. D.I.Mendeleeva.  
Predstavleno akademikom A.N.Frumkinym.  
(Acids, Organic) (Polymerization)

FIOSHIN, M.Ya.; GIRINA, G.P.; VASIL'YEV, Yu.B.; KHRULEV, M.V.; POLIYEVKTOV,  
M.K.; ARTEM'YEV, ~~A.Y.~~

Additions of alcohols and their effect on Kobe's electrosynthesis.  
Dokl. AN SSSR 140 no.6:1388-1391 O '61. (MIRA 14:11)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N.  
Frumkinym.

(Chemistry, Organic--Synthesis) (Electolysis)

KHOMYAKOV, V.G.; FIOSHIN, M.Ya.

Latest in the field of the electrochemical synthesis of oxidizers.  
Khim.prom. no.1:30-37 Ja '62. (MIRA 15:1)  
(Oxidizing agents) (Electrochemistry)